

REMARKS

Applicants express appreciation to the Examiner for consideration of the subject patent application. In the Office Action mailed March 6, 2008, the following actions were taken:

(1) Claims 1-3, 5-7, 9-18, 20-22, and 24-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,958,121 (hereinafter "Lin") in view of U.S. Patent No. 5,624,484 (hereinafter "Takahashi"); and

(2) Claims 4 and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Lin and Takahashi, and further in view of U.S. Patent No. 6,328,413 (hereinafter "Rutland").

Applicants submitted a Request for Continued Examination in the present application on February 11, 2009, at which time the final rejection of the pending claims was under appeal. The present response accompanies a Petition to Revive the present application under 37 C.F.R. § 1.137 pursuant to the requirement to provide "the reply required to the outstanding Office action." Accordingly, the present response is a responsive submission under 37 C.F.R. § 1.114(c) and in accordance with the USPTO's RCE practice. See MPEP 706(h). The claims are not amended herein, but new issues of patentability were raised by the filing of the RCE. Specifically, new prior art was cited with the previously filed RCE for the Examiner's consideration.

In view of the following remarks and those asserted in Appellants' Appeal Brief filed August 19, 2009 and Reply Brief filed December 11, 2008, both of which are hereby incorporated by reference in their entireties, it is respectfully submitted that the presently pending claims be reconsidered and allowed.

Applicants' Claims

The present claims set forth a system (claims 1-15) and method (claims 16-30) for ink-jet imaging that provide reduction in nozzle clogging due to cross-contamination. Claims 1-15 set forth a fluid dispensing system specifically designed for ink-jet printing comprising an ink-jet ink with from 0.1 wt% to 6 wt% of an anionic dye colorant and from 0.05 wt % to 1.0 wt % of an anionic dispersant polymer. The claims also set forth a fixer composition with a cationic crashing agent that is reactive with a component of the ink-jet ink. The fluid dispensing system can be configured for overprinting or underprinting the fixer composition with respect to the ink-jet ink.

Claims 16-30 sets forth a method for ink-jet imaging including jetting from printing nozzles an ink-jet ink that includes from 0.1 wt% to 6 wt% of an anionic dye colorant and from 0.05 wt% to 1.0 wt% of an anionic dispersant polymer, and jetting from printing nozzles a fixer composition including a cationic crashing agent reactive with a component of the ink-jet ink. The fixer composition is either overprinted or underprinted with respect to the ink-jet ink.

Rejections under 35 U.S.C. § 103

1. Rejection over Lin in view of Takahashi (claims 1-3, 5-7, 9-18, 20-22, and 24-30)

a. Lin fails to suggest every element of the claims

The Examiner rejected claims 1-3, 5-7, 9-18, 20-22, and 24-30 as being allegedly unpatentable over Lin in view of Takahashi under 35 U.S.C. § 103(a). Applicants contends that the Examiner has not met its burden of establishing a *prima facie* case of obviousness for failure to teach or suggest every element of these claims in the arrangement required by the claims.

As noted by the Examiner, the Lin reference teaches a set of inks which can include a first ink and a second ink. The first ink has a color and comprises water and a colorant selected from the group consisting of anionic dyes, dyes having physically or chemically associated therewith a stabilizing agent having anionic groups, pigment particles having anionic groups chemically attached thereto, pigment particles having physically or chemically associated therewith a stabilizing agent having anionic groups thereon, and mixtures thereof. The second ink includes a cationic ammonium functional group to immobilize the first ink. The Examiner has cited a specific portion of Lin as allegedly teaching the presence of both anionic dyes and anionic dispersing agents. Although this passage does provide a laundry list of a variety of possible stabilizers, including anionic, cationic, and non-ionic, Applicants have pointed out that there is no clear teaching of the use of an anionic dye of one weight percent concentration with an anionic dispersing agent with another weight percent concentration.

In response to these observations, the Examiner has pointed to column 21, lines 11-37 of Lin to assert that such a combination is taught. To present a *prima facie* case of obviousness, “the examiner must provide evidence which as a whole shows that the legal determination sought to be proved...is more probable than not.” MPEP 2142 (emphasis added). Applicants submit that

the teaching of Lin as a whole does not support a determination that Applicants' claims are obvious.

Regarding the language pointed to by the Examiner, Applicants submit that the phrase "the dye or pigment" should be read in light of the preceding disclosure within its specification, particularly from column 17, line 64 up to the cited language. Particularly, Lin teaches that colorants to be used in the inks can be selected from dyes, pigments, and mixtures thereof. Column 17, 64-67. In view of this and the knowledge of those skilled in the art that dispersants generally are of no need in inks which solely utilize dye colorants, it is reasonable that any subsequent discussion of dispersants be provided to address those embodiments that include pigments. Not surprisingly, Lin immediately goes on to discuss the use of dispersants exclusively in the context of pigments. Column 18, lines 4-23. Lin then goes on to set forth lists of suitable dyes and pigments, but without affirmatively teaching the combination of an anionic dye colorant with an anionic dispersant polymer. Column 18, line 44 to column 21, line 11.

Applicants submit that in view of the preceding disclosure and the knowledge in the art, the phrase "the dye or pigment" at column 21, line 11 cannot be considered a clear or affirmative teaching of the combination of elements recited in each of claims 1 and 16. While the use of dispersants is well known and often required when using pigments, dyes are generally soluble, and considered to need no dispersing. Thus, based on this conventional knowledge, and based on the fact that nothing to the contrary is taught in this reference, one skilled in the art would never assume that the dispersant discussion relates to anything other than the pigment.

Further, Applicants have noted that the reference at the location cited by the Examiner discusses anionic dyes separately from dyes having physically or chemically associated stabilizing agents. In other words, the reference appears to focus on anionic dyes separately from anionic dyes with stabilizing agents associated therewith. Nowhere does the reference refer separately to an embodiment where an anionic dye is used in an ink, and further a different concentration of a dispersing agent is used, as required by the currently claimed invention.

In response, the Examiner has pointed to language at column 18, lines 44-48 as suggesting that the anionic dyes listed thereafter are to be combined with anionic stabilizing agents. The language cited in fact states that "[a]ny suitable dye or mixture of dyes that is compatible with the other ink ingredients can be used." Once again, Applicants submit that this vague language (e.g.

“the other ink ingredients”) should be read in view of the whole disclosure and the knowledge in the art. One skilled in the art would be well aware that inks commonly contain a variety of other ingredients besides colorant, including biocides, humectants, and surfactants. Such a one would more likely view this language as advising compatibility of the dye with these kinds of additives. This language does not demonstrate that a skilled artisan would more likely than not associate the listed anionic dyes with anionic dispersants. The Examiner asserts that “[i]t would obvious that [the listed anionic dyes] is referring to the second ink as the first ink contains specifically anionic dyes and the third and fourth inks contain pigments.” Applicants point out that Lin discloses a composition with two inks. The “inks” to which the Examiner appears to be referring are actually a list of possible colorants for the first ink of the composition. See e.g. column 11, lines 13-31. As such, Applicants submit that the inclusion of anionic inks in the list beginning at column 18, line 45 does not raise the assumption argued by the Examiner.

b. Takahashi fails to remedy the deficiencies of Lin

The Examiner has combined Lin with Takahashi, where Takahashi is cited to provide an alleged teaching of overprinting and underprinting of a fixer composition. However, Applicants assert that the present claims are also patentable over this combination of references because Takahashi fails to remedy the deficiencies of Lin described above. Specifically, Takahashi does not teach or suggest an ink-jet ink with from 0.1 wt% to 6 wt% of an anionic dye colorant and from 0.05 wt % to 1.0 wt % of an anionic dispersant polymer. Rather, like Lin, Takahashi teaches these components as alternatives, with the dispersant being used in conjunction with pigments rather than dyes. In fact, Takahashi supports the Applicants’ assertion that one skilled in the art would typically not use dispersants with dyes, but rather would use dispersants with pigments. When dispersing agents are discussed in Takahashi, they are always tied directly to the use of a pigment in the ink and not to the use of an anionic dye as required by the currently pending claims. This can be seen at col. 5, lines 20-25, where Takahashi proposes the use of inks “comprising a dye containing an anionic group..., or inks comprising an anionic compound and a pigment” (emphasis added). Elsewhere in Takahashi, the ink is again described as using either an anionic dye or a pigment, and Takahashi goes on to teach that “[i]n the case where the pigment is used as a coloring material, an anionic compound is used in combination.” Col. 8, lines 11-15

(emphasis added). See also col. 9, lines 35-37, lines 53-55, and lines 58-60; Column 10, lines 3-5 and lines 54-56; Column 11, lines 4-9 and lines 30-35; as well as the Examples. Nowhere does Takahashi teach the combination of anionic dye colorant and anionic dispersant polymer in an ink-jet ink as recited in claims 1 and 16. Consequently, Takahashi does not remedy the deficiencies of Lin with regard to teaching or suggesting the elements of these claims.

In light of the above, Applicants submit that claims 1 and 16 are patentable over the combination of Lin and Takahashi, as these references fail to teach every element of these claims in the arrangement required by the claims. Instead, both of these references teach combinations or arrangements that, while indicative of the knowledge and expectations of those of ordinary skill in the art, are different from Applicants' claims. Applicants submit that in view of the differences between Applicants' claims and the references and understanding of the art, the present invention as a whole would not be obvious to one skilled in the art from the teaching of the references. Furthermore, this is also true for all of the claims depending from claims 1 and 16, in that each includes all of the limitations of the claim from which it depends.

Therefore, Applicants respectfully submit that claims 1-3, 5-7, 9-18, 20-22, and 24-30 are allowable over Lin and Takahashi. Withdrawal of the rejection is respectfully requested.

2. Rejection over Lin and Takahashi further in view of Rutland (claims 4 & 19)

In addition to the above rejection, the Examiner cited Rutland, in combination with Lin and Takahashi, to remedy the deficiency in claims 4 and 19 of a teaching of ink-jet printing nozzles and fixer printing nozzles configured in a proximity such that, upon jetting, small amounts of fixer composition aerosol jetted from the fixer printing nozzles contact the ink-jet ink printing nozzles, thereby resulting in the ink-jet printing nozzles being susceptible to cross-contamination by the fixer composition. Not only does Rutland not remedy the missing elements of the combination of Takahashi and Lin with respect to the presence of an anionic dye and an anionic dispersing agent, Rutland also does not teach a system with all of the claim limitations required by claims 4 and 19. In fact, Rutland more likely teaches away from such a combination.

Specifically, the Examiner has cited to Column 2, line 66 to Column 3, line 28 of Rutland for support of the teaching that the ink-jet printing nozzles and fixer printing nozzles can be close enough together to be susceptible to cross-contamination. Applicants note that such discussion is

in the background section of the Rutland patent and generally teaches away from the use of ink-jet nozzles which cause cross-contamination, particularly when a “fixer” solution is present. The purpose of the invention taught in Rutland is to minimize “cross-contamination of print cartridges in an inkjet printing system due to aerosol drift by employing a bidirectional spitting scheme coupled with a configuration of the print cartridges.” In other words, Rutland teaches a method and/or system for minimizing cross-contamination which involves, amongst other things, configuring the print nozzles or cartridges in such a way as to eliminate or avoid cross-contamination. Therefore, Applicants submit that Rutland teaches away from the required elements of claims 4 and 19.

The Examiner has asserted that “Rutland does not teach away from spitting” and that “the problems foreseen in Rutland will not prevent the present usage in the combination of references.”

Applicants point out that the claims at issue require not spitting *per se*, but an arrangement of printing nozzles in which the claimed printing system and method are particularly relevant. It should be kept in mind, therefore, that claims 4 and 19 include the limitations recited in claims 1 and 16, respectively. As such, the question is whether the asserted combination of references would suggest the claimed invention as a whole. Applicants assert that, in addition to its failure to remedy the deficiencies of Lin and Takahashi, Rutland would guide one skilled in the art to an arrangement of elements quite unlike that set forth in the claims. Rather than the composition and arrangement recited in Applicants’ claims, Rutland would more likely lead one to a more conventional ink set employed with a bidirectional spitting scheme coupled with a configuration of the print cartridges.

As such, even if the combination of Takahashi and Lin were to teach all of the required elements of claims 1 and 16, (see above) claims 4 and 19 could not be rendered obvious by their combination with Rutland. Stated another way, the need for specialized configuration of various nozzles is not necessary in the claimed invention if the system of the claimed invention is implemented, because the ink compositions themselves can ameliorate clogging due to cross contamination.

In view of the above, Applicants submit that the combination of Lin, Takahashi, and Rutland do not present a *prima facie* case of obviousness with regard to claims 4 and 19. Withdrawal of the rejection is respectfully requested.

CONCLUSION

In light of the above, Applicants respectfully submit that pending claims 1-7, 9-22, and 24-30 are in condition for allowance. Therefore, Applicants request that the rejections and objections be withdrawn, and that the claims be allowed and passed to issue. If any impediment to the allowance of these claims remains after entry of this response, the Examiner is strongly encouraged to call Gary Oakeson at (801) 566-6633 so that such matters may be resolved as expeditiously as possible.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this response to Deposit Account No. 08-2025.

DATED this 10th day of November, 2009.

Respectfully submitted,

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